

Monitoring Study Group Meeting Minutes

November 14, 2007

CAL FIRE Mendocino Unit Headquarters, Howard Forest Training Center

The following people attended the MSG meeting: George Gentry (BOF—chair), Tharon O'Dell (GDRCO), Julie Bawcom (CGS), Dr. Richard Harris (UCB), Matthew House (GDRCO), Drew Coe (CVRWQCB), Debra Hallis (CVRWQCB), Dave Hope (NCRWQCB), Stormer Feiler (NCRWQCB), Dr. Matt O'Connor (OEI), Allen Robertson (CAL FIRE), Erik Wahl (CAL FIRE), Robert Horvat (CAL FIRE), Gerri Finn (CAL FIRE), Dave Longstreth (CGS), Julie Rhoads (MRC), John Munn (CAL FIRE), Mike Laing (NCCFFA), Dennis Hall (CAL FIRE), Richard Gienger (HWC/SSRC), Marty Hartzell (CVRWQCB), Peter Ribar (CTM), Kevin Faucher (CTM), and Pete Cafferata (CAL FIRE). **[Action items are shown in bold print]**.

We began the meeting with general monitoring-related announcements:

- Pete Cafferata briefly summarized the extensive southern California burn assessment work being conducted by state and federal agencies following containment of 23 wildfires that burned approximately 520,000 acres. The federal government rapidly assembled six BAER (Burned Area Emergency Response) teams (5 USFS and 1 DOI) for eight fires with National Forest and BIA lands. CGS geologists participated on most of these teams. Approximately one week later, the state formed five additional teams made up of representatives from CAL FIRE, CGS, DWR, DFG and DPR for the Santiago, Canyon, Rice, Witch/Poomacha, and Harris Fires, and an additional team for the remaining smaller fires. Post-fire assessment teams consisted of engineers, geologists, hydrologists, foresters, biologists, archeologists, and GIS experts. The goal was to assess burned areas and focus on identifying threats to lives and property from flooding and debris flows. The teams worked under the direction of a Multi-Agency Support Group (MASG), which was led by FEMA and OES. Field work was to compliment (not duplicate) work completed by federal teams, counties, Caltrans, etc. While recommendations by the federal and state teams are still being developed, preliminary measures include no broad scale grass seeding, very limited helimulching for at least two fires, installation or use of existing early warning rain gauge systems with telemetry (e.g., ALERT) for evacuation in areas susceptible to flooding and debris slides, letters and personal contacts with homeowners in high risk locations, erosion control work along highways, and hazard tree removal. NRCS will provide funding (75% cost share) for projects they agree to sponsor on private lands. Pete summarized his work on the Rice Fire, Dave Longstreth reported on his involvement on the Grass Valley, Slide and Santiago Fires, and John Munn commented on his work with the Canyon Fire team. See the following website for the state/federal BAER reports: <http://www.oes.ca.gov/Operational/OESHome.nsf/ALL/6C9651A85E8E98D988257398007B899F?OpenDocument>.
- Richard Harris summarized UC's workshop titled "The Angora Fire: What Will the Future Forest Be?" held in South Lake Tahoe on November 3rd. Susie Kocher and Daylin Wade gave presentations describing monitoring work completed to date, including installation of silt fences on CTC parcels, long profiles in stream channels, and soil penetrometer data in areas before and after salvage harvest. **Dennis Hall and Richard suggested that the MSG hold a field meeting to observe the Angora Fire in the spring of 2008.** The presentations are posted at: http://ceeldorado.ucdavis.edu/Natural_Resources247/Angora_Fire_Workshop_Nov_13,_2007_Documents.htm.
- Drew Coe announced that the American Geophysical Union (AGU) will hold their annual meeting in San Francisco the week of December 10th, with several presentations on fire impacts in the Hydrology Section (see the following website for more information: <http://www.agu.org/cgi-bin/sessions5?meeting=fm07&sec=H>).

Monitoring the Effects of Timberland to Vineyard Conversion Projects

Dr. Matt O'Connor, O'Connor Environmental, Incorporated, provided the MSG with a PowerPoint presentation on determining the hydrologic and geomorphic impacts of vineyard conversion projects. He began by stating that he has mainly used data collected over many years at the Caspar Creek Experimental Watersheds for modeling potential vineyard conversions, since the soils and geology are generally similar. He said that while a Caspar Creek analogy is not perfect, it is the best data set available for this type of work. Matt explained that the North Fork Phase of the Caspar Creek project included monitoring the impacts of numerous clearcuts in a second growth coast redwood/Douglas-fir forest, and he stated that conversions, at least initially, can be assumed to be hydrologically similar to clearcut areas. Peak flows and annual water yields have been found to increase following harvest at Caspar Creek due to reduced evapotranspiration and lower interception loss. Matt cited the recent Reid and Lewis (2007) paper reporting that 22.4% of incoming precipitation is intercepted and evaporated by forest canopy; Ziemer (1998), who found that 2-year recurrence interval peak discharges increased approximately 30% in clearcut subwatersheds; Lewis (1998), who reported that there was roughly a 200% increase in suspended sediment yield from clearcut headwater subwatersheds; and Keppeler (1998), who documented an average 150% increase in summer baseflow and a 15% increase in annual water yield following clearcutting in the North Fork. Caspar Creek papers are posted at: <http://www.fs.fed.us/psw/topics/water/caspar/caspubs.shtml>.

Dr. O'Connor displayed a diagram illustrating that vineyard conversions are typically proposed for ridge top locations with slopes less than 30%, 200 to 500 feet wide, and extend to the vicinity of Class III channel initiation. Conversion effects are expected to include increased soil moisture, a potential increase in percolation to the water table that increases groundwater recharge (assuming wells are not drilled for irrigation), and increased soil compaction. Even with initial soil ripping with crawler tractors to a depth of 2-4 feet, soil infiltration capacity will decrease with time due to normal vineyard equipment operations, as well as reduced organic surface litter and root biomass relative to that found in a forest environment. Erosion control plan measures typically include use of cover crops that may partially compensate for these impacts. Often interception ditch lines and sub-drains route excess runoff to small storage reservoirs built as part of vineyard conversion projects for summer irrigation. Wells are occasionally proposed for irrigation and their construction often initiates great public concern over reduced groundwater availability for nearby homeowners.

Modeling of potential impacts from converting forest land to vineyards typically includes groundwater and peak flow analyses. Effects on groundwater can be estimated by completing water balances and groundwater modeling, but Matt stated that we need more monitoring work to document actual changes that occur with these projects. Peak flow changes cause concern due to potential erosion in swales from gullying, as well as increased downstream turbidity and suspended sediment concentrations. Peak flows can be modeled with the Rational Method and detailed computer programs such as TR 55, HEC-1, HEC-HMS, and DHSVM. Use of runoff detention (i.e., reservoirs), energy dissipators, flow spreaders, and channel bioengineering can mitigate increased peak flow impacts. Matt illustrated modeled peak flow changes with data he produced for a project located on Manchester Ridge in Mendocino County using the Rational Method (woodland runoff coefficient = 0.3; vineyard = 0.4). The mean increase for a 2-yr return interval peak flow for 26 small drainages was estimated to be 18%. Vineyard surface erosion can be modeled with the Universal Soil Loss Equation (USLE), RUSLE2, WEPP, and erosion plot data. While complicated to use, Matt stated that RUSLE2 may provide reasonable results in a watershed context. Potential sediment mitigation measures include cover crops, sedimentation basins

and bioengineered deposition zones (e.g., swales, wetlands). Small erosion test plots using silt fences have been installed on the Preservation Ranch located in the Gualala River watershed in western Sonoma County for forest and vineyard conditions. Preliminary results after two overwintering periods (2005/2006—wet winter; 2006/2007—dry winter) show a statistically significant increase in sediment yield from vineyards compared to forested areas, but that typical sediment yields for the vineyard plots with this limited data set were still low (< 0.1 t/ac/yr).

Larger scale considerations for vineyard conversion projects are also important, but cumulative effects at the watershed scale are difficult to adequately deal with for these types of assessments. To partially address this issue, stream monitoring stations have been installed for two winter periods in four representative subwatersheds in the Gualala River watershed: Soda Springs (1.8 mi²), Buckeye (3.1 mi²), South Fork Fuller Creek (1.2 mi²), and Franchini Creek (1.5 mi²), where the large Preservation Ranch conversion project is proposed. These stations have recording turbidimeters, pumping samplers, data loggers, and automated stage measurement devices. With a bar chart, Matt showed that rapid sediment budget work for the Franchini Creek basin projects an annual sediment yield range of approximately 1000 to 1500 t/mi²/yr. The Gualala River TMDL states that the estimated sediment yield under current conditions is 1400 t/mi²/yr and the desired future condition TMDL amount is 475 t/mi²/yr. Actual stream gaging data has produced an estimate of approximately 550 t/mi²/yr (suspended sediment only—estimated to be 80% of total load) in water year 2006 (wet year) and roughly 50 t/mi²/yr in water year 2007 (dry year). The mean of these two years is approximately 300 t/mi²/yr, but this is admittedly a very small sample and very infrequent, episodic events undoubtedly affect actual long-term sediment yields. Matt also displayed a similar bar chart for the Buckeye subwatershed. For this catchment, sediment budget estimates range from 1300 to 2200 t/mi²/yr. TMDL current and desired future condition sediment yields are identical to those above, but measured sediment yields are approximately 1100 t/mi²/yr in 2006 and 200 t/mi²/yr in 2007, with a mean of about 650 t/mi²/yr. Matt concluded by saying that these are good background data and “food for thought.” Dr. O’Connor credited Rand Eads, RiverMetrics, LLP; Kleinfelder; and Premiere Pacific Vineyards as being significant partners in the collection and analysis of this data.

Preliminary CVRWQCB Waiver Monitoring Program Results

Debra Hallis, CVRWQCB, provided a PowerPoint presentation that had been developed by Drew Coe on the Central Valley Regional Water Quality Control Board’s Waiver monitoring program. This talk covered an overview of the monitoring approach being used, preliminary results, remaining issues, and future direction for the program. Debra began by stating that the CVRWQCB’s Waiver monitoring program is mainly a qualitative approach, with few if any, quantitative data or results. Rigorous, statistically valid monitoring was rejected since it was thought to be beyond the ability of most landowners, too costly, and not practical for large numbers of harvesting plans. The monitoring approach selected has a goal of a 100% sample for moderate and high risk timber harvest activities (denoted as Category III and IV plans), and generally requires three phases of monitoring. Implementation monitoring determines whether BMPs are implemented properly, forensic monitoring makes sure that BMPs are functioning correctly during stressing storms, and effectiveness monitoring provides a feedback loop to improve BMP performance. Generally, visual inspections are required four times a year. The main objective is to have landowners on the ground to take corrective actions when and where necessary to protect water quality. Monitoring is not used for punitive actions.

The CVRWQCB Waiver monitoring requirements became effective in 2005, but July 2007 was the first year that all plan submitters were required to submit a Waiver monitoring report, which are required until a "Notice of Termination" has been filed [see Attachment B in: http://www.swrcb.ca.gov/rwqcb5/adopted_orders/Waivers/R5-2005-0052.pdf]. Annual reports were only required for landowners that had a Waiver and had started timber harvest activities on their plan area prior to the 2007 reporting year. To date, 273 annual reports for 2007 have been received for plans approved by CAL FIRE from 1999 through 2006 (note that THPs have a 3 yr life and can be extended 2 yrs). Most of the annual reports are for THPs approved from 2001 to 2005. The total area of plans covered for the submitted monitoring reports was 298,000 acres. Compliance with the monitoring requirements was difficult to track because the CVRWQCB did not have information on THPs that were active during the 2007 reporting year. Hence, compliance was estimated by comparing annual report submittals to the total population of THPs that were currently enrolled in the Waiver. For 2007, overall THP compliance for the monitoring requirement was 27% (i.e., 27% of the plans potentially requiring an annual report actually had one filed). The overall THP acreage in compliance was 49%. These numbers are low because numerous Notice of Terminations have yet to be filed for older completed plans. Industrial landowners have submitted 89% of monitoring reports (97% of required THP acreage), while small landowners have filed 11% of required reports (3% of required acreage). Debra stated that considerably more public education is required for nonindustrial landowners regarding mandated monitoring requirements, while industrial landowners are doing a good job and are generally in compliance.

Ms. Hallis presented examples of typical and atypical statements included in Waiver monitoring reports. Usually, verbiage included is quite vague and general (e.g., waterbars looked good; everything looked perfect; no problems were observed during the inspection). Rarely, very detailed descriptions describing erosion features near disturbed soil areas are submitted. Debra stressed that photo point monitoring has been the most productive type of evidence submitted with the monitoring reports. Photos have provided visual evidence of proper implementation, water quality violations, and BMP effectiveness. In addition, they have been very helpful in determining if recommendations made on Pre-Harvest Inspections are working properly. Mandated photo point protocols do not exist, but suggested protocols are included in the CVRWQCB's monitoring guidelines document (see page 35 at the following website: http://www.swrcb.ca.gov/rwqcb5/water_issues/timber_harvest/guidelines-rqrd-wvr-mntrng.pdf).

Properly informing small landowners about their monitoring obligations under the Waiver remains a significant issue. This is being addressed with outreach to consulting RPFs, development of a pamphlet for small landowners, and availability of the monitoring guidelines document online, which includes sample forms that can be used by landowners. In the future, CVRWQB staff may try adding quantitative aspects to this qualitative monitoring program (such as simple matrix for rating road drainage and crossings as poor, fair, good, or excellent). Water Board staff want to share monitoring results with the other state and federal agencies, and it is hoped that the results can be used to guide and focus more rigorous and quantitative monitoring efforts.

Coho Salmon Incidental Take Assistance Rule Package Monitoring Requirements

George Gentry, BOF Executive Officer, led a broad discussion on the Board's strategy for protection and recovery of salmonids, including discussion of the Coho Salmon Incidental Take Assistance (ITA) Rule Package. He began by providing a brief history on the rule package, including how early consideration was given to developing an HCP or seeking

federal 4(d) coverage. Both were ultimately rejected due to the time and cost involved. The BOF adopted the coho ITA rule package in August 2007 and it is currently being reviewed by the Office of Administrative Law (OAL). A draft joint salmonid policy statement has been developed between the BOF and the California Fish and Game Commission, and George presented its main points at the recent CLFA workshop on forestry and anadromy held on October 26th in Redding. He handed out copies of the PowerPoint presentation for that session and summarized the main points. Before beginning, however, he stated that a significant caveat must be made—funding a new monitoring and adaptive management program is highly uncertain with the state budget shortfalls that currently exist.

The main component of the newly proposed “science-based” program is the formation a new Research and Science Committee (RSC), loosely based on the Committee for Monitoring, Evaluation, and Research (CMER) in Washington. The RSC would provide credible scientific information to the Board and would provide technical direction to BOF committees, including the MSG. Monitoring is envisioned to mainly rely on existing programs, such as the IMMP, FORPRIEM, and cooperative instream monitoring projects. Additionally, there would be: (1) development of a risk-based approach for cumulative watershed effects analysis (e.g. NetMap), (2) continued improvement for long-term management models (e.g., PTEIRs, SYPs, NTMPs, etc.), and (3) work with CAL FIRE’s FRAP unit and UC to develop a long-term repository for monitoring information.

Brief MSG Monitoring and Tracking Subcommittee Update

George Gentry reported that he led the initial MSG Monitoring and Tracking Subcommittee conference call on November 2nd. Approximately two-thirds of the appointed members were able to participate (several were missing due to fire assignments). The group discussed documents produced in 2006 (spreadsheet, Word document) summarizing existing agency, university, company, RCD, and watershed group monitoring efforts. **The goal of this subcommittee will be to develop a report that reviews and improves the draft list of monitoring activities that are occurring on private timberlands, evaluates the effectiveness of each approach, and evaluates the costs and benefits of the various monitoring approaches.** During the conference call, Dennis Hall suggested that it would be beneficial to have a student take a random sample of plans and document the monitoring that occurred and the costs involved. This would lead to discussion of the effectiveness of the approaches used, the other types of monitoring that could be considered, and to ways to make monitoring approaches more effective. CFA has offered to provide assistance with a survey documenting the monitoring that its members are currently undertaking. **No date has been set for the next conference call.**

Brief MSG Interagency Mitigation Monitoring Program (IMMP) Subcommittee Update

Pete Cafferata stated that the revised set of field protocols for the second phase of the IMMP pilot project were field tested at watercourse crossings by both the Coast and Inland teams during the first part of the summer. After considerable discussion by both teams, Shane Cunningham, CAL FIRE Redding, sent out revised IMMP protocols and guidelines for field procedures on August 29th for review by the IMMP Coast and Inland Team members. Some protocol questions were significantly altered and some were eliminated. Additional questions have been added to address water drafting approaches at watercourse crossings. Final field testing of the revised protocols occurred on October 10th near Weaverville. **IMMP Subcommittee members have begun to develop an IMMP database.** Dennis Hall informed the group that once the database has been finished and the data from the past two field seasons is entered into it, we will be able to run queries to determine if the critical questions regarding crossings are being answered. If that is the case, we will have developed

monitoring protocols for high risk crossings. **A final report on the IMMP pilot project will be written once the database work is completed.** The availability of adequate staffing and funding to sustain this program has yet to be determined. If these resources can be provided, the next goal will be to develop protocols for additional key forest practice issues.

Brief update on the FORPRIEM Monitoring Program

In Clay Brandow's absence, Pete Cafferata reported that the second phase of the Modified Completion Report monitoring program, now called FORPRIEM (Forest Practice Rules Implementation and Effectiveness Monitoring), has begun. This phase of the study is using a random 10% sample of THPs, based on year of submission, that have been completed and are undergoing Work Completion Reports. FORPRIEM training sessions have been held on:

- August 28th in Camino/Georgetown for CAL FIRE Region 4 foresters,
- September 18th in Mendocino County on MRC land for CAL FIRE's Mendocino Unit,
- September 24th in Auburn/Foresthill for the Nevada-Yuba-Placer Unit,
- October 1st at LaTour Demonstration State Forest for the Shasta-Trinity Unit.
- October 17th in the Hilt area for the Siskiyou Unit.

FORPRIEM training scheduled for the Sonoma Unit on October 29th and the Humboldt-Del Norte Unit on November 6-7th was cancelled due to southern California fire assignments. Training dates need to be scheduled for these units, as well as for the Santa Cruz and Butte Units. The goal was to train all CAL FIRE Forest Practice Inspectors before December, but that will no longer occur. Field staff from the other Review Team agencies are invited to participate in FORPRIEM training; interested participants should contact Clay Brandow (clay.brandow@fire.ca.gov). **Additionally, the FORPRIEM program still requires a database to store monitoring data. CAL FIRE staff are trying to address this need through CAL FIRE's IT section.**

Brief BOF Technical Advisory Committee (TAC) Update

The BOF's TAC was formed to oversee a scientific literature review of studies pertinent to riparian buffers and functions. The TAC has developed a list of key questions that a Board-appointed contractor will focus on in the literature for each riparian function. On August 21, 2007, two bids received for the TAC contract were opened, with the state rejecting both bids. The action was based on the need to: (1) clarify previously stated Board goals for ensuring appropriate scientific experts are conducting the literature review tasks, (2) clarify estimated contract value, and (3) eliminate tasks that have been already completed or are non-essential. On September 11th, the Board agreed with suggested revisions to the Request for Proposals (RFP) and to re-issue the contract. **The revised TAC contract is still at the CAL FIRE contract's office, with the hope that it will go out for circulation in late November.**

New and Unfinished Business/Public Comment

Richard Gienger stated that, based on the CVRWQCB's presentation at this meeting, photo point monitoring guidelines need to be formalized and widely circulated.

Upcoming MSG Meetings

The next MSG meeting date is tentatively set for February 13th in the Redding area. The meeting location and agenda will be emailed to the MSG email list. The second MSG meeting in 2008 will be a field meeting held in the Lake Tahoe Basin to observe and discuss the Angora Fire and monitoring activities in the Tahoe Basin being undertaken by UC and others.